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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,777	07/12/2001	Toru Iwagami	210760US2	1366
22850	7590	03/01/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			KITOV, ZEEV	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	
			2836	

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/902,777

Applicant(s)

IWAGAMI ET AL.

Examiner

Zeev Kitov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Drawings*

Figures 8 and 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Abstract*

1. The Abstract is objected to due to the following phrase: "The fault circuit, outputting the stop signal created by the same through a fault terminal, can also receive a stop signal output from another control circuit and supply the same to the power device driving circuit and the input circuit" (emphasis added).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Besides removal of the legal phraseology, the text is hardly understandable. To give reader better understanding of a Patent content, the above sentences should be rewritten.

2. The last sentence in the Abstract is hardly understandable. For better understanding, it should be rewritten.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

1. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A reason for that is a following statement: "while stopping operation of at least one of said first and second switching elements also by a signal, identical to said stop signal, input from the exterior of said at least one control circuit" (emphasis added). A meaning of the statement is not clear. For purpose of examination patentable weight was not given to the sentence.

2. Claims 2 and 7 are rejected as being indefinite due to a following reason.  
Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process*

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*Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “sensitivity” in claims 2 and 7 is used by the claims to mean “threshold value”, while the accepted meaning is “The ratio of the magnitude of its response to the magnitude of the quantity measured” (IEEE 100 The Authoritative Dictionary of IEEE Standard Terms, 7<sup>th</sup> Ed.). The term is indefinite because the specification does not clearly redefine the term. For purpose of examination the term “sensitivity” was interpreted as “threshold value”. Appropriate correction is required.

3. Claim 6 is rejected as being indefinite due to a following statement: “said driving voltage is supplied to a control electrode of a low-potential side one of said at least one set of first and second switching elements also as a control voltage” (emphasis added). The word one does not carry any meaning in the Claim. Accordingly, patentable weight was not given to the word.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 5 - 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Nygaard (US 4,099,225). Nygaard discloses all the elements of the claim such as: a semiconductor device including: at least one set of complementarily operating first and

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second switching elements serially interposed between first and second main power supply terminals supplied with a dc voltage (elements Tr2 – Tr7 in Fig. 1); at least one control circuit driving/controlling said at least one set of first and second switching elements (element 20 in Fig. 1); and a shunt resistor detecting a current flowing across said first and second main power supply terminals (elements 14, 15 and 16 in Fig. 1), wherein the at least one control circuit includes: at least one current detection circuit (elements 23 - 26 in Fig. 1) detecting a voltage generated by a current flowing to the shunt resistor and outputting a current abnormality signal indicating current abnormality when detected the voltage is in excess of a prescribed level, and a fault circuit (element 27 in Fig. 1) receiving the current abnormality signal output from the at least one current detection circuit and outputting a stop signal for stopping operation of at least one of the first and second switching elements, and the fault circuit has a function of outputting the stop signal to the exterior of the at least one control circuit while stopping operation of at least one of the first and second switching elements

Regarding Claim 2, Nygaard discloses the current detection circuit including first and second current detection circuits (elements 23 and 25 in Fig. 2 respectively), and the first current detection circuit has inherently (since it measures the short circuit current) higher detection threshold than the second current detection circuit (measuring the undercurrent (col. 5, lines 29 – 38)).

Regarding Claims 5 and 7, Nygaard discloses a voltage detection circuit (element 25 in Fig. 2) detecting a driving voltage supplied to the at least one control circuit and outputting a voltage reduction signal indicating voltage reduction when the

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driving voltage is below a prescribed level (col. 5, lines 44 – 47, col. 7, lines 24 – 30), and the fault circuit outputs the stop signal when at least one of the voltage reduction signal and the current abnormality signal is present. According to the Specification (page 13, lines 11 – 15), the “driving voltage” of the Claim is nothing but the Supply voltage Vcc, which detection is disclosed by Nygaard.

Regarding Claim 6, Nygaard discloses the driving voltage (signals K3 – K4 generated by block 20 in Fig. 2) being supplied to a control electrode of a low-potential side of the at least one set of first and second switching elements also as a control voltage.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nygaard in a view of Court Decision, *In re Japikse*, 86 USPQ70. Regarding Claims 4 and 9, Nygaard discloses a plurality of sets of the first and second switching elements (elements Tr2 – Tr7 in Fig. 1). It further implicitly discloses the plurality of control circuits, which are fed to the inverter signal generator (element 20 in Fig. 2 is fed by signals 21). It further discloses the control circuit detecting the voltage of the shunt resistor (elements 23 – 26 in Fig. 2), which outputs the stop signal and supplies it to the

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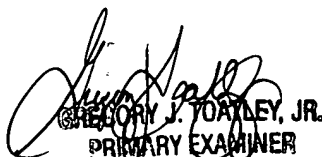
fault circuit of remaining the control circuit. However, the circuit detecting the voltage of the shunt resistor is not positioned inside one of the control circuits generating the driving signals. The Court Decision addresses this issue stating that a mere rearranging parts of an invention involves only routine skill in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Nygaard by placing the circuit detecting the voltage of the shunt resistor into one of plurality of the control circuits generating the driving voltage, because according to the Court decision, rearranging parts of an invention involves only routine skill in the art.

### **Conclusion**

The prior art made of record not relied upon is considered pertinent to applicant's disclosure: US <sup>3,427,526</sup>~~3,427~~, US 5,615,102, US 6,590,794, US 4,816,985.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272-2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2836. The fax phone number for organization where this application or proceedings is assigned is (703) 872-9306 for all communications.

Z.K.  
01/30/2004

  
GREGORY J. TORKLEY, JR.  
PRIMARY EXAMINER